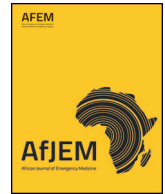




Contents lists available at ScienceDirect

# African Journal of Emergency Medicine

journal homepage: [www.elsevier.com/locate/afjem](http://www.elsevier.com/locate/afjem)

## ORIGINAL ARTICLE

## A cross-sectional survey of child abuse management knowledge among emergency medicine personnel in Cape Town, South Africa

Bruna Dessena<sup>a</sup>, Paul C. Mullan<sup>b,\*</sup><sup>a</sup> Anglo Gold Ashanti Mine Hospital, Emergency Medical Care Training, Koron Hospital, Siugui, Guinea<sup>b</sup> Division of Emergency Medicine, Department of Pediatrics, Children's Hospital of the King's Daughters, Eastern Virginia Medical School, 601 Children's Lane, Norfolk, VA 23509, USA

## ARTICLE INFO

## Keywords:

Paediatrics  
Child abuse  
Assessment  
South Africa

## ABSTRACT

**Introduction:** Child abuse is a common condition in the emergency centres of South Africa. It is critical for both prehospital emergency care practitioners and emergency centre-based emergency medicine registrars to be competent in screening, diagnosing, treating, and documenting child abuse. Our goal was to assess the knowledge of child abuse management in a sample of prehospital emergency care practitioners and emergency medicine registrars in Cape Town, South Africa.

**Methods:** A mixed-methods approach of quantitative and qualitative data was used to survey a sample of 120 participants (30 emergency medicine registrars and 90 prehospital emergency care practitioners: 30 Basic Life Support, 30 Intermediate Life Support, and 30 Advanced Life Support). An expert panel created the survey to ensure content validity and survey questions were designed to assess the perceived and actual knowledge of participants. We hypothesised that there would be significantly higher levels of perceived and actual knowledge in emergency medicine registrars compared to emergency care practitioners. An open-ended question on how participants felt dealing with child abuse was qualitatively analysed using thematic analysis.

**Results:** There were significant differences in the levels of perceived knowledge (58% of emergency medicine registrars agreed that they felt adequately trained overall, versus 39% of emergency care practitioners; –19% difference, 95% CI –26% to –12%) and actual knowledge (83% of emergency medicine registrars with correct answers, versus 62% of emergency care practitioners; –21% difference, 95% CI –26% to –16%) among participants. Themes that emerged from qualitative analysis included personal distress, retaliation, frustration, medical system frustration, and personal competence concerns.

**Discussion:** Significant perceived and actual knowledge deficits of child abuse management exist among both emergency care practitioners and emergency medicine registrars in this setting. Future interventions should address the need for guidelines and increased training opportunities to ensure the health and safety of abused children.

## African relevance

- Child abuse (physical, sexual, and neglect) is common in South Africa.
- Emergency medicine personnel knowledge in this topic area is not known.
- These personnel are frontline providers in assessing and treating abused children.
- This study is a critical first step in evaluating capacity to manage these cases.

## Introduction

Sexual and physical child abuse are common presentations in both prehospital and emergency centre settings. Healthcare providers in these settings play an important role in the recognition, reporting, and management of these abused children. Incidence reports of sexual violence only account for a small percentage of rape cases, as countless cases are never reported to medical or police resources [1,2]. Of the sexual violence cases in South Africa that are reported to police, 40% were under the age of 18 years, and the highest prevalence of rape in various age brackets is seen in the youngest age groups [1,3].

Peer review under responsibility of African Federation for Emergency Medicine.

\* Corresponding author.

E-mail address: [Paul.Mullan@chkd.org](mailto:Paul.Mullan@chkd.org) (P.C. Mullan).<https://doi.org/10.1016/j.afjem.2018.01.005>

Received 27 June 2017; Received in revised form 19 December 2017; Accepted 21 January 2018

Available online 20 March 2018

2211-419X/ 2018 African Federation for Emergency Medicine. Publishing services provided by Elsevier. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Significant morbidity and mortality continue to be seen in this population in the emergency setting, including the increased risk of transmission of sexually transmitted infections in the setting of non-consensual intercourse and the increased transmission risk based on the pathophysiology of the paediatric genital tract [4]. The perpetrators of child abuse can include family members, non-relatives in the home, teachers, peers, strangers, and others [5]. When physical abuse is severe or goes unrecognised, it can lead to homicide, which accounts for 0.6% of all childhood deaths in South Africa [6]; approximately 45% of these homicides are preceded by a prior incident of child abuse [7]. Of particular concern is that the estimates of child abuse in most settings are grossly under-reported, with actual incidence up to nine times higher than the reported statistics [8].

Children are especially vulnerable to abuse relative to adults due to multiple factors, including their limited ability to physically defend themselves, limited language capabilities to report abuse, and financial dependence on adults for meeting their daily needs [5]. The first healthcare providers to encounter an abused child are often prehospital emergency care practitioners and emergency centre-based emergency medicine (EM) registrars (physicians training to become specialists, sometimes referred to as residents in other countries). These healthcare providers must have the knowledge of how to effectively handle the disclosure and treatment of child abuse for the physical and emotional well-being of these victims [1,2]. The management of child abuse is critical for both the child's health and the criminal justice system. Unfortunately, many emergency centres lack the essential resources to assist in the process of dealing with child abuse victims. One regional study of 82 emergency departments in the United States (U.S.) showed that only 20% had regular staff training on sexual violence and more than half did not have the resources in place to assist victims who had disclosed about personal sexual violence [9]. Similar statistics on the preparedness of South African emergency centres have not been reported.

Other settings have tested the general knowledge about child abuse in EM residents and found that they have significantly less knowledge than paediatric residents [10]. We are unaware of any similar literature that assesses the level of knowledge of healthcare providers in the prehospital and emergency centre settings in South Africa in the area of child abuse. In this study, we use the term healthcare providers to refer to the combined group of prehospital emergency care practitioners (those in an Advanced Life Support (ALS), Intermediate Life Support (ILS), or Basic Life Support (BLS) role) and EM registrars. The current South Africa curricula for healthcare providers focus primarily on how to treat the abuse from a medical standpoint, but do not cover other aspects of care, such as the disclosure process for paediatric sexual and physical abuse victims. The objective of this study was to determine the level of perceived and actual knowledge of healthcare providers in South Africa regarding paediatric sexual and physical abuse management.

## Methods

This research study used a mixed methods approach of quantitative and qualitative data taken from a survey [11].

The participants included healthcare providers within the Cape Town metropolitan area. In order to get responses from people who were in direct contact with patients, full-time lecturers, administrators, emergency medical services control room personnel, and volunteers were excluded. Participation was explained as voluntary and participants were told that they would not receive any payment for taking part in the study. Consent documents were signed by all participants.

One group of participants were emergency care practitioners. As these practitioners can play other roles in the South African healthcare system, only those actively working in the prehospital environment were included. The principle investigator visited the ambulance stations in the Cape Town metropolitan area with the largest call volumes and invited emergency care practitioners at these stations to participate in the study. The principle investigator continued to collect a convenience sample of participants by visiting ambulance stations until 30 participants from each of the three qualification levels of emergency care practitioners (BLS, ILS, and ALS) had been obtained.

The second group of participants were EM registrars. EM registrars attending a Continuing Medical Education workshop on fluid resuscitation were approached for participation in the survey. A sample size of 30 registrars was determined to be adequate to obtain a normal distribution of scores and was deemed to be a representative sample for the Cape Metropolitan area. Participants were given the option of completing a paper-based survey or an identical emailed version of the paper-based survey. Paper-based versions included a consent form. The emailed version required participants to print out the consent form, sign it, scan it, and email it back to the principal investigator.

We created a new survey instrument, as a study in this content area was not available. The questions were initially created by the principal investigator (an ALS Paramedic) according to relevant literature and facts were verified by three registered EM specialists in South Africa [12–14]. The questions were iteratively edited and modified by these EM specialists to assure that they were at the expected level of knowledge for healthcare providers whose job expectations required the appropriate management of children who have been abused. This expert group and review process was performed to ensure face and content validity. A doctoral-level statistician reviewed the questionnaire to ensure best practice principles were in place for the number of surveyed questions and the number of participants in the convenience sample. No pilot study was conducted.

The survey had two sections relating to the assessment of each participant's child abuse knowledge: perceived knowledge and actual knowledge. Topic areas for both sections included the legal, medical, and psychosocial aspects of dealing with a child who has been abused. The first section (Table 1) explored the perceived knowledge of

**Table 1**

Perceived levels of knowledge of emergency medicine providers in the Western Cape Metropole area regarding the treatment of children who have been physically and sexually abused.

Area	EM Registrars	EMS Personnel (ALS, ILS, BLS)
	Positive response	Positive response
Felt adequately trained to know what is legally required	90%	58.9%
Felt adequately trained to know how to complete the legal documentation	53.3%	33.3%
Felt adequately trained to know what to say to the child	63.3%	34.4%
Felt adequately trained how to physically interact with the child	70%	41.1%
Felt adequately trained to understand the emotional space of the child	50%	36.6%
Felt adequately trained to know what to say and how to respond to the child	46.7%	37.8%
Felt adequately trained to deal with the practical aspects of treating the patient	63.3%	40%
Felt adequately trained to deal with the psychological aspects when treating a patient	26.7%	28.9%
Knew how to complete the J88 form (Report by Authorized Medical Practitioner on the Completion of a Medico-Legal Examination)	93.3%	N/A
Overall average (excluding the J88 question)	57.9%	38.9%

**Table 2**  
Actual levels of knowledge of emergency medicine providers in the Western Cape Metropole area regarding disclosure of child abuse by children during treatment.

Question	Correct answer	EM Registrars: Percentage correct	ALS, ILS, BLS: Percentage correct
When a child starts disclosing during treatment, the EM provider's reaction to the disclosure could have a long-term effect on the child's feelings of self-esteem and well-being	True	100%	88.9%
It is important to understand why children don't disclose abuse	True	100%	96.7%
When children below the ages of 6 or 7 disclose, the disclosures tend to be deliberate rather than spontaneous	False	66.7%	40.0%
Children younger than 8 years have poor judgement and generally disclosures of abuse cannot be taken seriously	False	96.7%	86.7%
Overall average		90.8%	78.1%

**Table 3**  
Actual levels of knowledge of emergency medicine providers in the Western Cape Metropole area regarding the practicalities around treating children who have been physically or sexually abused.

Question	Correct Answer	EM Registrars: Percentage correct	ALS, ILS, BLS: Percentage correct
When abuse is suspected or disclosed, it is okay to question the child further about the abuse and who the perpetrator is	False	56.7%	38.9%
If child abuse is suspected rather than confirmed, you are under no obligation to report it	False	100%	43.3%
If you allow a rape victim to urinate before the vaginal vault is swabbed for DNA evidence, it will obliterate the evidence.	False	66.7%	43.3%
Examination of a sexually abused child should always be done under anaesthetic.	False	60%	50.0%
You can be held liable, or sued by the defendant, if you report a case of suspected abuse and the court rules that it was not.	False	83.3%	37.8%
If you come across a case of child abuse, you need to report it to your station commander/hospital superintendent.	False	93.3%	91.1%
Shaken Baby Syndrome occurs in children mostly under six months of age	True	87.7%	66.6%
Overall average		78.1%	53.0%

participants; these questions included an ordinal Likert response scale of Strongly Agree, Agree, Disagree, Strongly Disagree. The second section (Table 2 and 3) assessed the actual knowledge of participants; these questions had a binary (true/false) response. One optional, open-ended question at the end of the survey asked the participant to explain how they felt when dealing with cases of child abuse. Demographic details collected in the survey were limited to the age of the participant, years of service, and professional qualifications. This study was approved by the Human Research Ethics Committee of the University of Cape Town (REC Ref 114/2012).

We aimed to describe the perceived and actual knowledge deficits of healthcare providers in the Western Cape. We hypothesised that there would be significant differences in the actual levels of knowledge between EM registrars and the emergency care practitioners. For comparison of groups, two sample tests of proportions were performed. A p-value of less than .05 was considered significant. For the perceived knowledge section, Strongly Agree and Agree responses were grouped into a positive response, while Disagree and Strongly Disagree were grouped into a negative response. All analyses were performed with Minitab 17 (© Minitab Inc., State College, Pennsylvania, U.S.).

The responses to the one open-ended question were coded by the principal investigator and senior author into themes using a qualitative thematic analysis approach [15]. Direct quotes from exemplar responses were collated into a table format to provide illustrations of the identified themes. Verbatim quotes from all open-ended responses were not listed, due to a concern for violating the anonymity of participants and/or patients.

**Results**

Of the 150 people who had been approached, 126 participants returned the surveys, a response rate of 84%. Because only the first 30 surveys received were included from each category of participants, the final sample group consisted of 30 EM registrars as well as 30 BLS, 30

ILS, 30 ALS emergency care practitioners. The age of participants ranged from 22 to 51 years of age. Participant experience ranged from eight months to 28 years.

*Section one: perceived knowledge and training*

The perceived level of knowledge was significantly different between EM registrars and emergency care practitioners, with 57.9% and 38.9% of the participants, respectively, perceiving that they felt adequately trained on the various management tasks (–19% difference; 95% CI –26.2% to –11.8%; p < .001) (Table 1). For the one question that only EM registrars answered, regarding the ability to correctly complete all sections of the J88 form required by the South African police, 93.3% perceived that they could do so adequately. The only question for which the majority of both EM registrars and emergency care practitioners perceived that they felt adequately trained was on the perception that they knew what was legally required in cases of child abuse.

*Section two: actual knowledge and training*

The actual level of knowledge was significantly different between EM registrars and emergency care practitioners: 82.7% and 62.1%, respectively, of the questions were answered correctly in each group (–20.6% difference; 95% CI –25.7% to –15.5%; p < .001) (Tables 2 and 3). A list of contact numbers in their workplace for reporting child abuse was reported by 43.3% of EM registrars and 37.8% of emergency care practitioners.

*Qualitative analysis*

Seventeen (14%) of the 120 participants answered the optional, open-ended question about how they felt when dealing with cases of child abuse. The themes that emerged from qualitative analysis of the

**Table 4**

Thematic analysis of answers to the open-ended question of how emergency medicine registrars and emergency care practitioners felt when they had been involved in the prior care of a patient with child abuse. (ALS = Advanced Life Support practitioner, EM = Emergency medicine registrar, ILS = Intermediate Life Support practitioner).

Theme	Quotes to Support Themes (Healthcare Provider Level)
Personal distress	“...made me want to cry in helpless fury.” (EM) “It upset me greatly.” (EM) “...made me feel horrible.” (EM)
Retaliation	“I seriously wanted to hurt the parents involved.” (EM) “There was only one way for me to handle the case and that was to hit the hell out of the gentlemen, I could not stand there and just left.” (ALS)
Ambivalence on assignment of blame	“...documentation made me feel hard not to judge the caregiver as they may or may not be the perpetrator.” (EM)
Medical system frustration	“After all, it should be providing justified care to the patient and not necessarily assigning blame.” (ILS) “The running around [of the patient] from one hospital to another was frustrating.” (ILS)
Personal competence concerns	“I would really love for there to be guidelines to assist us...” (ALS) “I was not sure of my legal role.” (ALS) “It made me feel uneasy that I may legally destroy evidence or do something wrong that would jeopardize the case – would like more training.” (EM)
Involvement of other healthcare providers	“I made child and patient comfortable while awaiting specialist.” (EM) “Reported it to the hospital manager and social worker.” (EM) “Contacted paediatrician and explained suspicion.” (EM)

comments included personal distress, retaliation, ambivalence on the assignment of blame, medical system frustration, personal competence concerns, and the involvement of other healthcare providers (Table 4). The most frequent themes included personal distress (n = 9 respondents), followed by personal competence concerns (n = 4), retaliation (n = 3), ambivalence on the assignment of blame (n = 2), medical system frustration (n = 2), and the involvement of other healthcare providers (n = 2).

## Discussion

We found significant deficits in both perceived and actual knowledge of healthcare providers in the emergency management of child abuse. The differences in perceived and actual knowledge were significant between EM registrars and emergency care practitioners. Our findings are similar to another assessment of healthcare provider knowledge on child abuse management [16]. A national survey in the U.S. by Markenson et al. assessed the knowledge of emergency medical technicians (EMT-Paramedic and EMT-Basic qualifications) on child abuse management and found a high frequency of incorrect answers related to abuse assessment (91%), history taking (80%), family management (80%), patterns of physical abuse injuries (59%), and the level of evidence required for reporting (50%) [16]. The vast majority of our healthcare providers felt adequately trained to know what is legally required in child abuse cases, but we found significant knowledge deficits in this area on our knowledge assessment. A significant gap between self-expressed confidence levels and actual knowledge was also reported in the Markenson et al. study.

Our findings highlight the need to expand healthcare provider training and knowledge in the area of child abuse within the Western Cape Metropole. Current syllabi for EM registrars and emergency care practitioners in South Africa provide limited time and material for training in the area of child abuse management. The Markenson et al. study reported similar circumstances, with the majority of EMT-Basic providers having received no training in child abuse in the past year [16]. This survey also found that 97% of EMT-Paramedics and EMT-Basic providers would prefer to have additional training in child abuse, especially in the areas of legal documentation, appropriate interaction with the family of the child, and cultural competency. Multiple studies among physicians have found that higher rates of reporting of child abuse were associated with physicians who had more education on the topic of child abuse [17,18]. Healthcare providers in South Africa may also benefit from educational tools and a set of guidelines to assist them in the management of children who have been abused [19]. Further research studies evaluating guideline implementation and effectiveness are recommended.

A qualitative study of interviews of EMT-Paramedic and EMT-Basic providers in the U.S. by Tiyyagura et al. explored the barriers and facilitators to effectively managing child abuse, finding similar themes to the ones identified in our qualitative analysis [20]. One barrier theme that they identified was the “fear of being wrong/burden of uncertainty” in cases of suspected abuse, which was similar to what we saw in participants’ ambivalence on the assignment of blame. Another theme they identified that facilitated the reporting of abuse was “sharing a mental model with peers,” which was closely related to our theme of “the involvement of other healthcare providers” to assist in management. Likewise, both studies identified “retaliation” as a theme. While the U.S. study’s participants were concerned about retaliation from the perpetrators secondary to reporting the abuse, our study’s participants discussed the possibility of retaliation in the opposite direction: from themselves against the abuse perpetrators.

This study had several limitations. First, the questions used in this survey instrument did not undergo full psychometric assessment. However, they were designed with EM specialists, an ALS emergency care practitioner, and statistical experts to ensure validity and appropriate design. Second, it is possible that the perceived knowledge of participants (Table 1) was an over- or under-estimation of their actual knowledge. For example, the majority of emergency care practitioners stated that they knew what was legally required, but the majority of this group answered incorrectly on a number of the questions related to the legal handling of child abuse patients. While we tried to make all of the questions applicable to both EM registrars and emergency care practitioners, there were two questions from Table 3 (questions 3 and 4) that were likely more applicable to the knowledge level of an EM registrar. Although this might have lowered the emergency care practitioner scores relative to the EM registrars, the emergency care practitioner scores on these questions were not significantly different from the scores of other knowledge-based questions. Another limitation of our study design is that we did not include nurses in our survey. Future studies could investigate the perceived and actual knowledge of child abuse management among nurses in the emergency centre setting, as they also play an important role in caring for these patients. Lastly, this study was done in the Western Cape of South Africa and the findings might not be generalisable to other areas of South Africa.

We created a knowledge assessment tool to survey EM registrars and emergency care practitioners on their knowledge of child sexual and physical abuse management. We found concerning knowledge deficits among these healthcare providers. Additionally, we found significant differences between the actual knowledge of EM registrars and emergency care practitioners. Themes of personal distress and competence were frequently identified among healthcare providers when describing their experiences in caring for children who have been abused. Future

educational or programmatic initiatives on child abuse management should be implemented to improve the actual knowledge and subsequent provision of care by South African healthcare providers in the pre-hospital and emergency centre settings.

### Conflicts of interest

The authors declare no conflicts of interest.

### Dissemination of results

The results of the study were incorporated into a presentation at a Netcare911 lecture to paramedics on the recognition and management of child abuse.

### Author contributions

BD conceived the original research question and methodology. BD and PM analysed and interpreted the data. BD and PM drafted the manuscript, and PM revised it. BD and PM approved the final manuscript.

### References

- [1] Jewkes R, Abrahams N. The epidemiology of rape and sexual coercion in South Africa: an overview. *Soc Sci Med* 2002;1231–44.
- [2] World Health Organization Report. Understanding and addressing violence against women, [http://apps.who.int/iris/bitstream/10665/77434/1/WHO\\_RHR\\_12.37\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/77434/1/WHO_RHR_12.37_eng.pdf) [accessed 26 June 2017].
- [3] Statistics South Africa. Quantitative research findings on rape in South Africa. <http://www.statssa.gov.za/publications/Rape/Rape.pdf>. Accessed 26 June 2017.
- [4] Pellett Madan R, Herold BC. HIV, sexual violence and special populations: adolescence and pregnancy. *Am J Reprod Immunol* 2013;69(Suppl 1):61–7.
- [5] Violence against children in South Africa. Pretoria: Department of Social Development/Department of Women, Children and People with Disabilities, 2012, [http://www.cjcp.org.za/uploads/2/7/8/4/27845461/vac\\_final\\_summary\\_low\\_res.pdf](http://www.cjcp.org.za/uploads/2/7/8/4/27845461/vac_final_summary_low_res.pdf). [accessed 12 October 2017].
- [6] Bradshaw D, Bourne D, Nannan N. What are the leading causes of death among South African children? MRC Policy Brief 2003;3:1–4.
- [7] Mathews S, Abrahams N, Jewkes R, Martin LJ, Lombard C. The epidemiology of child homicides in South Africa. *Bull World Health Organ* 2013;91:562–8.
- [8] Seedat M, Van Niekerk A, Jewkes R, Suffla S, Ratele K. Violence and injuries in South Africa: prioritizing an agenda for prevention. *Lancet* 2009;374(9694):1011–22.
- [9] Plichta SB, Vandecar-Burdin T, Odor RK, Reams S, Zhang YL. The emergency department and victims of sexual violence: an assessment of preparedness to help. *J Health Hum Serv Adm* 2006;29(3):285–308.
- [10] Starling SP, Heisler KW, Paulson JF, Youmans E. Child abuse training and knowledge: a national survey of emergency medicine, family medicine and pediatric residents and program directors. *Pediatrics* 2009;123(4):e595–602.
- [11] von Elm E, Altman DG, Egger M, Pocock SJ, Gotsche PC, Vandenbroucke JP, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *PLoS Med* 2007;4(1):e296.
- [12] Lamprecht L, Wild A, Labuschagne T. Gauteng Department of Education: Guidelines and procedure for dealing with suspected and confirmed cases of child abuse. Gauteng, South Africa: Gauteng Department of Education and Teddy Bear Clinic; 2008. pp. 6–9.
- [13] Joyner K. Aspects of forensic medicine: an introduction for health care professionals. Claremont, South Africa: Juta; 2010.
- [14] Pretorius D, Mbokazi AJ, Hlase KK, Jacklin L. Child Abuse: guidelines and applications for primary healthcare practitioners. South Africa: Juta; 2011.
- [15] Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: implications for conducting a qualitative descriptive study. *Nurs Health Sci* 2013;15:398–405.
- [16] Markenson D, Tunik M, Cooper A, Olson L, Cook L, Matza-Haughton H, et al. A national assessment of knowledge, attitudes, and confidence of pre-hospital providers in the assessment and management of child maltreatment. *Pediatrics* 2007;119. e103–8.
- [17] Lawrence LL, Brannen SJ. The impact of physician training on child maltreatment reporting: a multi-specialty study. *Mil Med* 2000;165(8):607–11.
- [18] Badger LW. Reporting of child abuse: influence of characteristics of physician, practice, and community. *South Med J* 1989;82:281–6.
- [19] Weintraub B, Lazzara P, Fuchs S, Wiltsek DL. Child maltreatment awareness for prehospital providers. *Int J Trauma Nurs* 2002;8(3):81–3.
- [20] Tiyyagura GK, Gaweel M, Alphonso A, Koziel J, Bilodeau K, Bechtel K. Barriers and facilitators to recognition and reporting of child abuse by prehospital providers. *Prehosp Emerg Care* 2017;21(1):46–53.